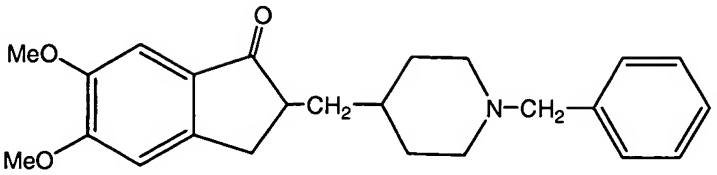
Claims of the Application:

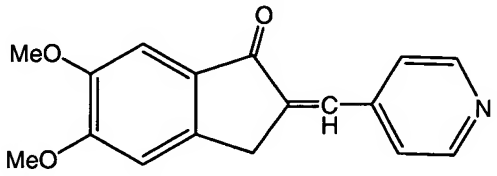
1. (Currently amended) A process for preparation of donepezil which has the formula (I),



(I)

said process comprising:

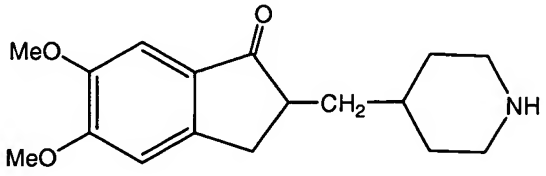
a) suspending a compound of the formula (IV):



(IV)

and a catalyst, which is palladium metal on a support carrier, in an alcoholic solvent;

b) hydrogenating the suspension at the hydrogen pressure of from about 1 to about 5 atmospheres and a temperature of from about 40 to about 90° C. ~~till~~ until the hydrogenation reaction is substantially complete to obtain a compound of the formula (VI):



(VI) ;

c) isolating said compound of formula (VI); and

d) converting said compound of the formula (VI) to said compound of the formula (I).

2. (Original) The process of claim 1, wherein said step of isolating said compound of the formula (VI) includes

c.1) removing the palladium catalyst;

c.2) removing the alcoholic solvent to obtain a residue;

c.3) contacting said residue with water to obtain an aqueous solution of said residue;

c.4) adjusting the pH of said aqueous solution to a range of from about 9 to about 14;

c.5) contacting said aqueous solution having said adjusted pH with an organic extractant;

c.6) separating said organic layer containing said residue; and

c.7) distilling said extractant from said organic layer thereby obtaining a second residue of the compound of the formula (VI).

3. (Original) The process of claim 2, further comprising triturating the second residue in a non-polar organic solvent selected from the group consisting of n-hexane, n-heptane, cyclohexane, cycloheptane, diethyl ether, diisopropyl ether, diisobutyl ether, methyl tertiary butyl ether, and petroleum ether.

4. (Original) The process of claim 1, wherein said alcoholic solvent is selected from the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol and tertiary butanol.

5. (Original) The process of claim 1, further comprising hydrogenating in the presence of acetic acid.

6. (Original) The process of claim 5, wherein said alcoholic solvent is methanol.

7. (Original) The process of claim 1, wherein said hydrogenation temperature is from about 60 to about 65 °C.

8. (Original) The process of claim 2, wherein said extractant is selected from the group consisting of dichloromethane, dichloroethane, chloroform and carbon tetrachloride.

9. (Original) The process of claim 2, wherein said pH is adjusted with a aqueous solution of a base selected from the group consisting of sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium hydroxide, potassium carbonate and potassium bicarbonate.

10. (Original) The process of claim 1, wherein said step of converting the compound of the formula (IV) to the compound of the formula (I) includes reacting the compound of the formula (VI) with benzyl bromide in a second alcoholic solvent in the presence of a second base at a temperature of from about 30 to about 80 °C.

11. (Original) The process of claim 10, wherein said second alcoholic solvent is selected from the group consisting of methanol, ethanol isopropanol, butanol acetone, ethylmethyl ketone, and 2-butanone.

12. (Original) The process of claim 10, wherein said second base is selected from the group consisting of sodium carbonate, sodium bicarbonate, potassium carbonate and potassium bicarbonate.

13. (Original) The process of claim 10, wherein said second base is selected from the group consisting of triethyl amine, tributyl amine, tertiary butyl amine and pyridine.

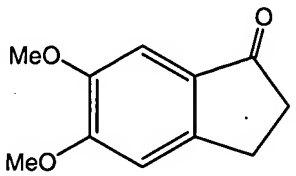
14. (Original) The process of claim 10, further comprising cooling the reaction mass to ambient temperature, filtering the reaction mass, diluting the filtrate with water and contacting the aqueous mixture with a second organic extractant.

15. (Original) The process of claim 14, wherein said second organic extractant is selected from the group consisting of isopropyl ether, methyl tertiary butyl ether, diethyl ether, toluene, benzene, ethyl benzene, xylene, hexane, cyclohexane and petroleum ether.

16. (Original) The process of claim 15, further comprising separating the organic layer and removing said second organic extractant therefrom to obtain a third residue.

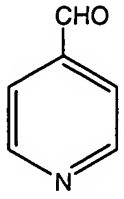
17. (Original) The process of claim 16, further comprising triturating said third residue in a non-polar organic solvent selected from the group consisting of n-hexane, n-heptane, cyclohexane, cycloheptane, diethyl ether, diisopropyl ether, diisobutyl ether, methyl tertiary butyl ether, and petroleum ether.

18. (Original) The process of claim 1, further comprising reacting a compound of the formula (II)



(II)

with a compound of the formula (III)

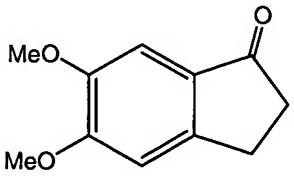


(III)

to obtain said compound of the formula (IV).

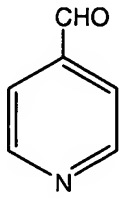
19. (Currently amended) A process for preparation of donepezil, said process comprising:

a. refluxing a mixture of 5,6-dimethoxy indanone of the formula (II)



(II)

and pyridine-4-carboxaldehyde of the formula (III)



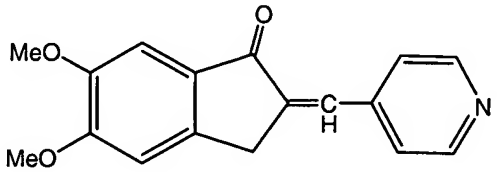
(III)

in toluene in the presence of p-toluene sulfonic acid until the reaction is substantially complete thereby a solid is formed;

b. cooling the reaction mixture to ambient temperature and filtering the solid;

c. suspending the filtered solid in an aqueous basic solution and stirring the suspension;

d. filtering the solid obtained in step c. to afford 5,6 dimethoxy-2(pyridin-4-yl)-methylene indan-1-one of the formula (IV):



(IV) ;

e. suspending the compound of the formula (IV) and palladium on carbon in an alcoholic solvent selected from the group consisting of methanol, ethanol, n-propanol, isopropanol, n-butanol and tertiary butanol in the presence of acetic acid in a hydrogenation vessel;

f. heating the reaction mixture of step e. under 1-5 ~~atmospheric~~ atmospheres hydrogen pressure at a temperature of 40 to 90° C. ~~till~~ until the reaction substantially completes;

g. cooling of the reaction mass of step f. to ambient temperature followed by filtering the catalyst;

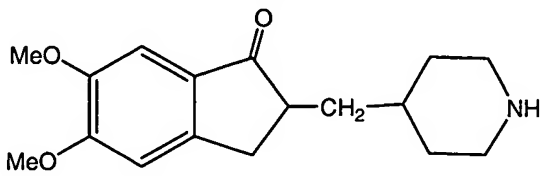
h. distilling the solvent from the filtrate obtained in step g. to get a residue;

i. dissolving the residue obtained in step h. in water and followed by washing with a chloro solvent selected from the group consisting of dichloromethane, dichloroethane, chloroform and carbon tetrachloride, and separating the aqueous layer;

j. adjusting the pH of the aqueous layer of step i. to 9 to 14 with a base solution comprising of sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium hydroxide, potassium carbonate or potassium bicarbonate;

k. extracting the compound from the basified aqueous layer of step j. with an organic solvent selected from the group consisting of dichloromethane, chloroform, dichloroethane, toluene, ethyl acetate, isopropyl ether, methyl tertiary butyl ether, diethyl ether and petroleum ether;

l. distilling the solvent from the reaction solution of step k., followed by triturating the residue in a non-polar organic solvent selected from the group consisting of n-hexane, n-heptane, cyclohexane, cyclo heptane, di ethyl ether, di isopropyl ether, di isobutyl ether and methyl tertiary butylether and petroleum ether, ~~e~~ to afford 5,6-dimethoxy-2-piperidin-4-yl methyl-indan-1-one of the formula (VI):



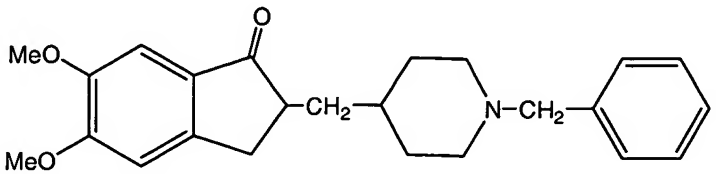
(VI) ;

m. reacting the compound of the formula (VI) with benzyl bromide in a solvent selected from the group consisting of methanol, ethanol isopropanol, butanol acetone, ethylmethyl ketone, and 2-butanone in the presence of a base selected from the group consisting of sodium carbonate, sodium bicarbonate, potassium carbonate, potassium bicarbonate, triethyl amine, tributyl amine, tertiary butyl amine and pyridine at a temperature of 30-80°C., until the reaction substantially completes;

n. cooling the reaction mass to ambient temperature and followed by filtering the mass;

o. diluting the filtrate obtained in step n. with water and further extracting the compound into ether solvents selected from the group consisting of isopropyl ether, methy tertiary butylether, diethyl ether, toluene, benzene, ethyl benzene, xylene, hexane, cyclohexane and petroleum ether; and

p. distilling the solvent from the reaction solution of step o. followed by triturating the residue in a non-polar organic solvent selected from the group consisting of n-hexane, n-heptane, cyclohexane, cyclo heptane, di ethyl ether, di isopropyl ether, di isobutyl ether, methyl tertiary butylether and petroleum ether, to obtain the donepezil of the formula (I):



(I)

~~of the formula (I):~~.

20. (Original) The process of claim 19, wherein said aqueous basic solution of step c. is a solution of sodium hydroxide, sodium carbonate, sodium bicarbonate, potassium hydroxide, potassium carbonate or potassium bicarbonate.

21. (Original) The process of claim 19, wherein said aqueous basic solution of step c. is 10% w/v sodium bicarbonate solution.

22. (Original) The process of claim 19, wherein the catalyst for catalytic hydrogenation of step e. is 5% or 10% palladium over carbon.

23. (Original) The process of claim 19, wherein the catalyst for catalytic hydrogenation of step e. is carried out in the presence of 1 to 5 mole ratio of acetic acid with respect to the compound of the formula (IV).

24. (Original) The process of claim 23, wherein said mole ratio is 1.0 to 1.5.

25. (Original) The process of claim 1, wherein said carrier is carbon.

26. (Original) The process of claim 19, wherein the chloro solvent of step i. is dichloromethane.

27. (Original) The process of claim 19, wherein the aqueous base solution of step j. is 10% w/v potassium hydroxide solution.

28. (Original) The process of claim 19, wherein the non-polar solvent for trituration of step l. is petroleum ether.

29. (Original) The process of claim 19, wherein said alcoholic solvent of step (m) is ethanol.

30. (Original) The process of claim 19, wherein the inorganic base of step m. is sodium carbonate.

31. (Original) The process of claim 19, wherein the reaction temperature of step m. is 55-60°C.

32. (Original) The process of claim 19, wherein the aromatic hydrocarbon solvent of step o. is toluene.

33. (Original) The process of claim 19, wherein the non-polar solvent for trituration of step p. is petroleum ether.